



2021 Volume 16

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Green River Region Angler Newsletter

Fish Management in the Green River Region

We hope you enjoy the 2021 issue of the Green River Region Angler Newsletter. This year's edition introduces personnel new to the region, provides updates from the 2020 field season, highlights the tools used to monitor and manage AIS and fish populations, and more.

The Green River Fisheries Region is the largest fisheries region in the state and one of the most diverse! Page 3 of the newsletter shows how watersheds within the region are divided between regional biologists to manage the State's fisheries to the best of our abilities. The region has a little something for everyone, including trophy Lake Trout, native Colorado River Cutthroat Trout, Smallmouth Bass, Kokanee, Tiger Trout, and more.

We manage aquatic resources for *you*, the people of Wyoming. Your input is very important, and we appreciate your comments. Please feel free to contact us at 307-875-3223, or using the information provided below. Happy fishing!

The Green River Crew



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New to the Crew

New Green River Regional Fisheries Biologist



The Green River Region Fisheries crew welcomes Jessica Dugan to the team. Jessica transferred from Casper where she worked as the Regional Fisheries Biologist and managed a diverse set of waters, including Pathfinder and Glendo reservoirs, the Miracle Mile, and the North Platte River from Glenrock to the Nebraska state line. Jessica is no stranger to the Green River Region; in 2018 she worked as a biologist for Game and Fish studying Roundtail Chub in the Blacks Fork drainage of Southwest Wyoming.

Jessica completed her master's from UW in fisheries management in 2015 where she studied Brown

Trout food preferences and nongame fish habitat use in the Laramie River in Southeast Wyoming.

Dugan's passion for fish and wildlife has led her all across Wyoming. Jessica worked for the National Park Service engaging in cutthroat trout conservation in Yellowstone National Park and completed two field seasons as a fisheries technician for Game and Fish working in multiple regions across Wyoming after graduate school.

She looks forward to meeting many of the anglers in the region as she begins to explore and study her new waters.

New Green River AIS Specialist



Eric Hansen transplanted from the plains of Kansas to Wyoming at the age of five. He spent his childhood exploring the great outdoors and getting his hands and feet dirty wherever he could. Whether catching buckets full of sunfish at Cook Lake in the Black Hills of Wyoming or tracking the progress of the pollywogs that inhabited the mud puddles of the grasslands surrounding his hometown of Gillette, you could usually find him outside. To this day, you can observe him elbows deep in the dirt of his garden or bending down, camera in hand, to get a closer look at something that catches his eye.

Eric spent his tenure with

Wyoming Game and Fish first as an AIS technician and then Casper Region AIS Specialist. He has enjoyed working in the great expanses of our wonderful state protecting our waterways from aquatic intruders and in the public teaching the importance of conserving our natural spaces for all future generations to enjoy.

Eric is excited to continue now as the AIS Specialist for the Green River region where he will be exploring the western side of the continental divide for the first time in his life, and helping to preserve the iconic Flaming Gorge Reservoir and surrounding waters from the present threat of an AIS introduction.

New Positions added to the Evanston I-80 AIS check station to in response to increased boat traffic

by Jessica Warner

The Green River Region, like the majority of Wyoming, continues to see increasing traffic at watercraft inspection stations as well as, new AIS threats to the state. In response, you may notice some changes within the Evanston AIS crew. For several years, six technicians have staffed the watercraft inspection station located at the Evanston Port of Entry. They were frequently overwhelmed by the number of boats arriving. During the 2020 boating season, that number of technicians manning the port of entry increased to eight. However, in response to the almost 50% increase in boating traffic last season alone, the Evanston Port of Entry check station will now be staffed by eleven technicians. You can expect to see our roving check stations staffed more frequently with the addition of more

inspectors. These roving check stations are located at Highway 150 just outside of Evanston, Highway 89 near Sulphur Creek turn off, and at the main boat ramp at Sulphur Creek Reservoir. We will also be able to staff the Port of Entry station with two inspectors early and late to more efficiently inspect and decontaminate morning and evening boat traffic. The personnel changes, along with the addition of some new equipment, will help ensure the Evanston AIS crew will be ready to meet all of your watercraft inspection and decontamination needs this boating season.

A new position, the Evanston Check Station Lead, was created to help manage the complex workings of such a busy check station. The Evanston Check Station Lead will work alongside the Evanston AIS Specialist to increase the efficiency and operating capacity of the

Evanston Port of Entry check station. Carson Lowry, a two-year Evanston inspector, was selected to fill this position for the 2021 season.

The Evanston AIS Specialist, which has historically been a nine-month contract position, recently transitioned into a full-time, permanent position to provide consistent, year-round support for the State's busiest check station and a main point of entry for watercraft. This position continues to be staffed by Jessica Warner. Ms. Warner has overseen the successful operations at this check station for over five years and she is personally responsible for many of the improvements that allow the station to operate more efficiently and reduce the time boaters are at the station.



Increased staffing at the Evanston Port of Entry AIS check station will help reduce wait times for boaters.

Divide and Conquer

By Jessica Dugan

Our top priority is managing the State's fisheries to the best of our abilities. Similar to the other regions around the state, the Green River Region has two fisheries biologists that manage the fisheries and aquatic resources within the region.

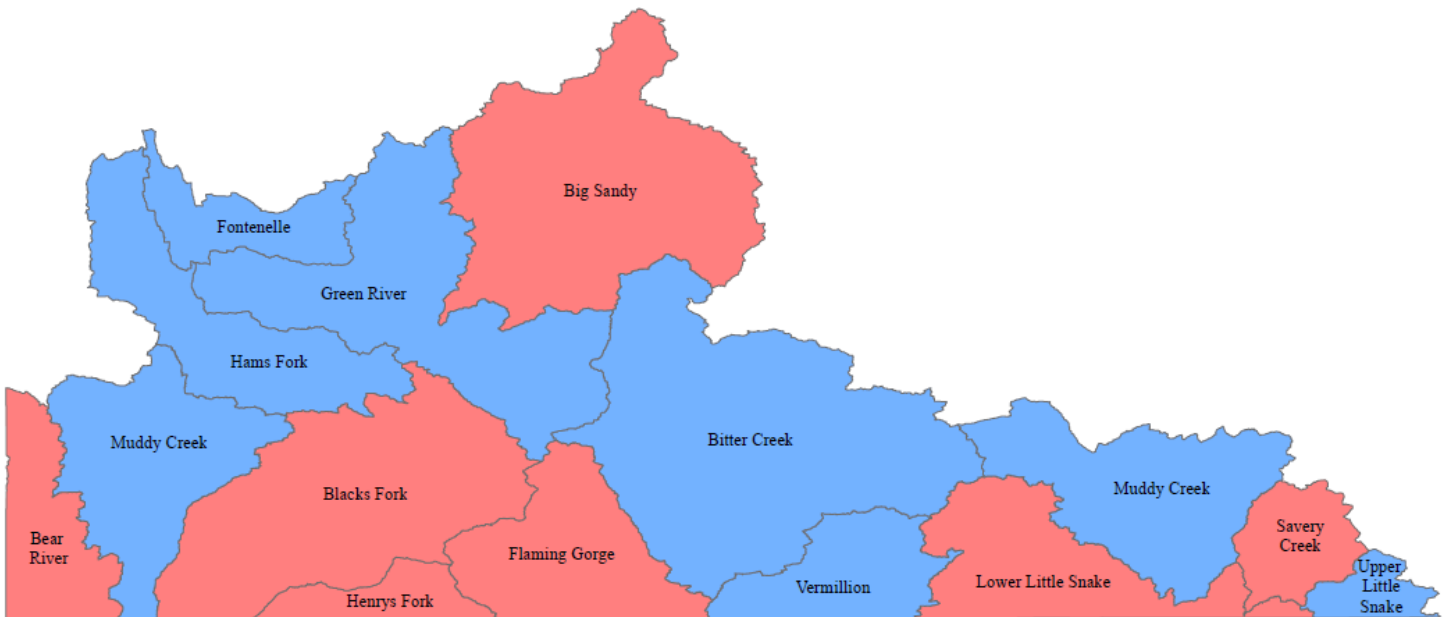
It's important that both biologists contribute equally to all aspects of the fisheries work in our region. This is why watersheds within the region are strategically divided between the two biologists.

Each biologist manages watersheds that contain local sport fisheries, Colorado River Cutthroat Trout, and native three species. In addition, both biologists work in watersheds located near and far from the Green River Office.

We are responsible for many waters and quality fisheries, so we can't make it everywhere each year. Luckily, our wardens keep us informed about the goings on in their districts and help us collect creel information from anglers. Jessica Dugan manages the blue basins, and John Walrath manages

the red basins. We also have AIS specialists located in Evanston and Green River. Robert Keith, the fisheries supervisor, oversees the biologists and the AIS specialists in Green River and Evanston.

We love hearing from the public and staying engaged helps us manage the fisheries. If you have questions about a particular water body or want to share an experience, please reach out. Our contact information can be found on Page 1 of this year's newsletter.



Red Basins



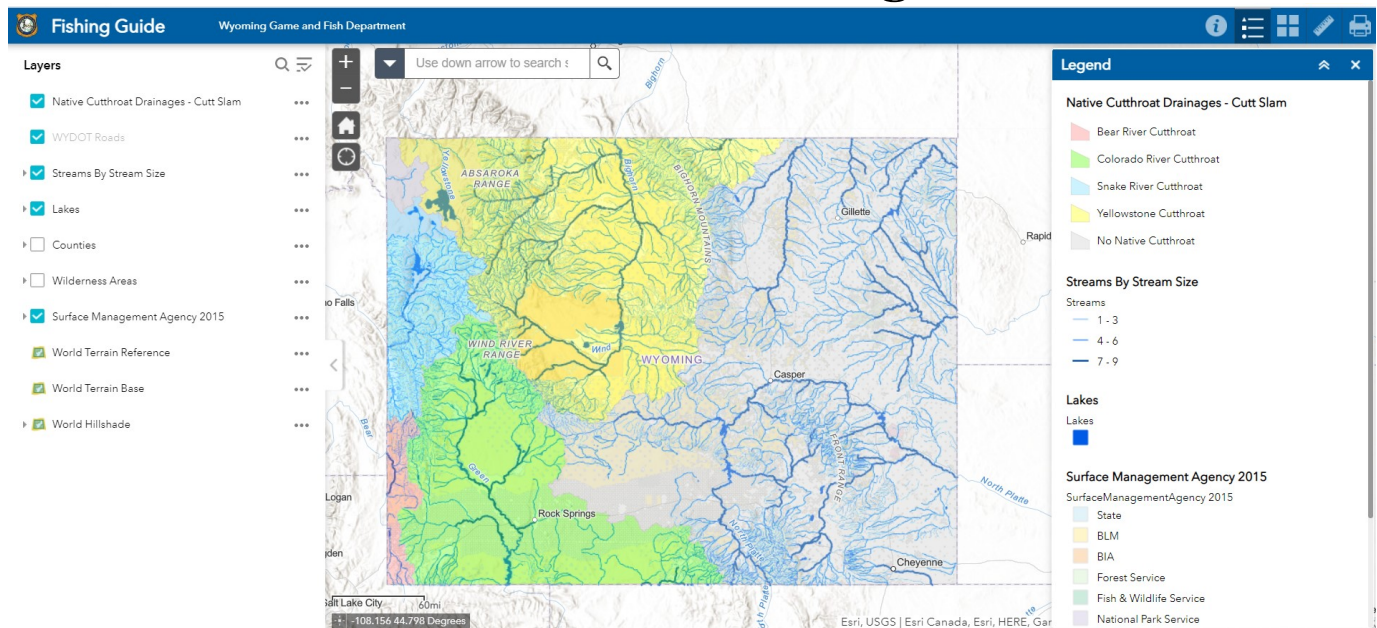
Entire Region



Blue Basins



New Interactive Fishing Guide



Native Cutthroat Drainages in our interactive fishing guide. Map layers (left) can be turned on or off, while the Legend (right) will help you find items such as public roads.

By Andrew Nikirk

Are you thinking of visiting Wyoming for a fishing trip? Are you the diehard wilderness angler looking for that next Golden Trout water? The Wyoming Game and Fish Department has developed a new tool to help anglers find their next destination. Our new Interactive Fishing Guide will give you a ton of information with a simple click. Start by visiting our website at www.wgfd.wyo.gov. From there, click on 'Fishing and Boating' (blue box at the top of the screen), then click on "Places to fish and boat in Wyoming" (green box). Lastly, click on the Interactive Fishing Guide link.

The Interactive Fishing Guide was created to help anglers explore the wealth of Wyoming fishing opportunities. The simplest features allow users to zoom in and click on any water to see the species of fish present at that water. Click the 'Zoom-to' feature (at the bottom of the species present box) and the

available facilities such as boat ramps, camping, and comfort stations will appear on the screen. Every water that you click on is also linked to our Fishing Regulations and the contact information for the specific regional office should you have additional questions.

Several GIS layers are available with this fishing guide to assist you in narrowing down a new location to fish simply by turning them on. For instance, if you are thinking of fishing a wilderness area, simply turn on the Wilderness Areas layer. From there you can click on individual lakes and streams to see where the elusive Golden Trout are found. Perhaps you're interested in completing our Cutt-Slam. Simply turn on the Native Cutthroat Drainages layer and you'll see the native drainages and waters for our four native cutthroat subspecies. To speed up your search, use the search feature at the top of the screen. Here you can search lakes and

streams by species present or by water name. For instance, typing Tiger Musky into the search box brings up the 14 Wyoming lakes with that species.

Give our new Interactive Fishing Guide a try the next time you're looking for a new water to fish, and as always, Happy Fishing!

New Fish Stocking Reports

By Jessica Dugan

Please visit <https://wgfd.wyo.gov/Fishing-and-Boating/Fish-Stocking> to access stocking reports with information on where, when, and what species have been stocked around the state. Information is updated monthly, and historical stocking information is available. Click the links to view past stocking reports for 2018 and 2019 or create a custom reports for a specific county, species, water, and stocking year. Reports can be exported as .csv files and saved for your convenience.

East Fork Hatchery



By Chip Moller and Jessica Dugan

Most Wyomingites associate fish hatcheries with providing anglers sportfish, like trout that are stocked into many of the State's waters. A less known fact is the Wyoming Game and Fish Department has been working for almost a decade to hold, spawn, and rear native sucker species in captivity. What is now known as the East Fork Hatchery was constructed in July of 2012 to hold, culture, and eventually stock native Flannemouth and Bluehead suckers into restored reaches in their native drainages. The facility

was built near the existing Boulder Rearing Station, and personnel from the Boulder Rearing Station manage and oversee daily operations. The facility consists of a 12' X 16' hatchery building for early life stage hatching and rearing, four outdoor linear fiberglass rearing units, two outdoor circular units and a storage shed for equipment and feed. Water is supplied to the facility from a nearby spring pond.

From 2012 to 2016, a great deal of experimentation was completed at the facility utilizing Flannemouth X White sucker hybrid fish and Roundtail chub from the Green River drainage. Wild Flannemouth and Bluehead suckers from the Muddy Creek drainage southwest of Rawlins were first brought to the facility in 2016 to serve as broodstock. Additional Flannemouth Suckers from the Little Snake River drainage were brought to the facility in 2019 to bolster the numbers of the broodstock. Because native suckers can hybridize with nonnative White Suckers, fin clips have been taken and analyzed to determine the

genetic purity of individual fish being held at the facility. As of February 2021, a total of 55 Flannemouth and 83 Bluehead suckers are currently being held as brood sources at the hatchery.

It took a few years for our native fish to become comfortable enough to spawn in captivity. In 2019, Boulder personnel successfully spawned and reared Bluehead Sucker for the first time at the facility. With a few exceptions, the spawning and incubation processes are very similar to those for trout. Eggs from a ripe adult female are stripped into a pan, and milt from an adult ripe male is added to the eggs. Contrary to trout eggs, Bluehead Sucker eggs are somewhat sticky. Following fertilization, the eggs are washed in a solution to unbind the eggs from each other so excess milt and debris can be thoroughly rinsed from the eggs before they are placed in the incubator. Also, contrary to trout eggs, Bluehead sucker eggs develop very rapidly. The time of egg fertilization to the time at which the fish become fry and actively start feeding generally takes 50 to 60 days for trout eggs, depending on



Spawning Bluehead Sucker

East Fork Hatchery cont'd



System to hatch Artemia on site.

water temperature. However, Boulder personnel found it only took 14 days from the time adult Blueheads were manually spawned on June 6th to the time the resulting fry actively started feeding on June 20th. In addition, Boulder personnel have set up a system to hatch artemia, an extremely minute saltwater brine shrimp purchased from a commercial supplier as an encapsulated egg. The fry are fed artemia for about a month and then

progress to a larger diet consisting of algae wafers, blood worms and copepods until they are large enough to be stocked out to their native range.

Aligned with our mission to conserve and enhance “all aquatic wildlife and their habitats for future generations,” the Wyoming Game and Fish Department has engaged in efforts to conserve and restore Flannemouth and Bluehead suckers in their native drainages, since the early 2000s.

The Muddy Creek drainage southwest of Rawlins is one of five subdrainages the Wyoming Game and Fish Department selected to be prioritized for management actions to conserve and restore the native suckers. Because hybridization with nonnative White Sucker poses the greatest threat to Bluehead and Flannemouth suckers in the Muddy Creek drainage, mechanical and chemical efforts have focused on eliminating nonnative White Suckers from the drainage.

Chemicals remove all fish from the reaches being treated. One of the final parts of the chemical restoration process is to re-introduce the native species back into restored reaches. Thanks to all the time and hard work from Boulder personnel, over 1,900 Bluehead Sucker fry spawned and reared at the East Fork Hatchery have been re-introduced to restored reaches in Muddy Creek.



Bluehead Sucker fry.

Viva Naughton Reservoir Fishery Update

By Jessica Dugan



Trout harvested at Viva Naughton

If you are interested in a fun day of fishing or a weekend getaway, look no further than Viva Naughton Reservoir. Located 16 miles North of Kemmerer, WY, on WY-233, Viva Naughton Reservoir contains Rainbow Trout and Tiger Trout, which were introduced back in 2014. Spring gill net surveys conducted continue to document high numbers of Rainbow Trout, and catch rates averaged 0.93 – 0.95 fish per hour in June of 2020. Anglers should be pleased with the size of fish caught this year, as the

majority of trout sampled were over 16 inches. In addition, the overall condition (i.e., plumpness) of trout was good in 2020. Rainbows averaged 16.4 inches and 1.82 pounds; the largest rainbow sampled in 2020 was 24.5 inches and weighed 5.42 pounds. For those interested in trophy trout fishing, Viva Naughton should not be overlooked. Tiger Trout sampled in 2020 average 22 inches and 5.14 pounds. The largest Tiger Trout sampled in spring gill nets measured 28.1 inches and tipped the scales at 10.1 pounds!

A Multifaceted Approach to Keep Aquatic Invaders at Bay

By Eric Hansen

The days are longer, the temperatures are warmer, and the itch for boaters to dust off their craft and hit the pristine waters in the state of Wyoming is kicking into high gear. Over the last decade, the Aquatic Invasive Species (AIS) program has conducted watercraft inspections with ever-increasing numbers over the spring, summer and fall. At our check stations, boaters frequently ask about what other methods we employ to prevent the introduction of the dreaded dreissenid mussels-Zebra and Quagga-into our waterways. Folks are also interested to learn about the other AIS we hope to prevent the spread of and keep close tabs on when they pop up in spots around the state. Some of the other species we monitor are invertebrates like Asian clam and Rusty crayfish, along with aquatic vegetation like Hydrilla and Curly-leaf pondweed. We have implemented an ever-growing monitoring effort to identify the presence of these

invaders, and just as the water begins warming to the point that recreationists seek out a nice beach to set out for and cool clear water to play in, we start our annual monitoring efforts.

These efforts involve a multifaceted approach on land and water to search for AIS that may have gone undetected. On our lakes and reservoirs, we conduct plankton tows that will help detect juvenile mussels (free-floating planktonic larvae known as veligers) and substrate monitoring of docks, boat launches, buoys, etc.

At areas deemed high for the probability of mussel introduction, we drop a fine mesh net to just above the bottom and pull a vertical water column sample of planktonic life to be analyzed for unwanted intruders. Each water gets a different number of sites sampled based off size, number of boat launches, risk assessment and more. While smaller waterbodies may only require two to three sites sampled, others like the Flaming Gorge get upwards of seven. All major reservoirs are sampled twice seasonally, once during peak water temperatures for mussel reproduction, and again in the fall before water temperatures begin to drop and ice begins to form. In 2020, we sampled 376 sites on 76 waters, including 68 lakes and reservoirs and 8 flowing waters statewide; all 76 waters came back negative for mussel veligers.

When not searching by boat, we are walking miles of shoreline and wading out into streams and rivers with sampling gear to search for AIS, which are often barely visible to the naked



Sampling for macroinvertebrates.

eye. Flowing water monitoring consists of visual searches under rocks and on banks, along with net sampling of macroinvertebrate life. Using kick nets, we turn over rocks, sift through sediment and pick through aquatic vegetation for any indication of unwanted aquatic life.

Should an AIS species be found, we document it, send samples off for verification and then begin the process of deciding how established the population is and if eradication efforts can be made to prevent their spread any further. While we have been spared the most detrimental introduction, that of Zebra/Quagga mussels, so far, we have documented populations of Asian clam, New Zealand mud snail, Rusty crayfish and Curly-leaf pondweed. At these locations around the state, we have posted infested water signs to help keep the public aware of their presence and remind them to **Drain, Clean and Dry** their gear and equipment after using these waters and before going to recreate in another.



A plankton tow sample collected from a Wyoming lake.

A multifaceted approach cont'd

Our monitoring efforts are always expanding, and each year we are made aware of new ways that AIS are being transported. Recently Wyoming AIS employees have taken over the monitoring and inspection of hatcheries, both state owned and private, and of all loads of sports fish being imported into the state. The recent discovery of Zebra mussels in aquarium moss balls, has us engaged with pet stores to make sure aquarium hobbyist are aware of proper water disposal procedures and the ability for AIS to be transported in this manner.

Our AIS program remains dedicated to preventing the introduction of aquatic invasive species into our idyllic waters as the threats to our western waters grow. Our AIS program relies heavily on the support of our water

recreationists and with your support, we will continue to keep our state Dreissenid mussel free. For more AIS information you can visit our webpage at <https://wgfd.wyo.gov/Fishing-and-Boating/Aquatic-Invasive-Species-Prevention>. Any AIS questions, concerns or possible sightings can be directed to our AIS hotline at 877-WGFD-AIS.

Have a safe and fun summer while playing, fishing, and enjoying our beautiful lakes and rivers. Remember to always **Clean, Drain and Dry** anything that has come in contact with a body of water before next use. With your assistance and support we can keep our waters pristine for future generations to enjoy and make great memories.



All loads of sportfish imported from out of state are examined on sorting boards and any AIS are removed before fish are stocked.

What's SUP with that? Inspection and decal requirements necessary for launching in Wyoming.

By Eric Hansen

As the itch to go cool off and play at our beautiful lakes and reservoirs becomes unbearable, WGFD would like to remind you of the steps you need to take before using any type of watercraft in the state.

With all of the types of watercraft/toys available to you these days, it can be complicated to make sure you are in compliance with the Aquatic Invasive Species (AIS) regulations in the state. In alignment with the U.S Coast Guard's definition of a watercraft, **we inspect all non-motorized craft (including paddle boats, kayaks and inflatable kayaks, stand up paddleboards, and more) and any motorized craft.**

An AIS decal is required for many crafts, but there are some exemptions. **Inflatable kayaks less than 10' long and non-motorized stand up paddleboards (or SUPs) are exempted from the decal requirement but still require an inspection.**

We appreciate your continued help to keep Wyoming waters AIS free, and for more inspection and decal information, you can visit our AIS website at:

<https://wgfd.wyo.gov/Fishing-and-Boating/Aquatic-Invasive-Species-Prevention>

or contact your local AIS specialist for more information.

Fisheries Management 101: Why and how we manage Wyoming's Fisheries

By John Walrath

The management of fisheries is not as simple as one might think. It has a lot to do with balancing the desires and needs of people while also taking into consideration the best interest of the fish and their habitats. Fisheries managers set limits on the number and size of fish that can be kept along with where, when, and how fish are caught. To make these decisions, they look at the size and structure of a fish population, how it interacts with other species, and whether the species needs protected areas to reproduce and grow. The overall goal is to maintain a sustainable fishery, ensuring that the mortality associated with angling, harvest, and natural causes is in balance with recruitment into the population, whether it is natural recruitment or fish stocked by the Department.

Fisheries management can be boiled down into its three major pieces: habitat, fish populations, and people. One can envision these three components as being 'legs' of a stool. Weakness in any one of the

legs will result in an undesirable outcome; the stool tips or even breaks. Fisheries managers gather information (e.g., sampling fish populations, monitoring habitat, conducting angling and creel surveys) to make informed management decisions. They also act as the intermediary between the public, scientific method, and policy makers. This means managers must distill the science and data collected into a form that the public and other stakeholders can easily understand while also being able to communicate the public's desires, comments and concerns to policymakers.

Managers can glean information about a population by taking a subsample of the population to make management decisions about the whole population. They assume the subsample represents the whole population. One way to visualize this is to think about a grass pasture. To learn what's in your pasture, you'd probably be apprehensive to cut it all down and enumerate everything present. You would end up losing your pasture

and, it would take a lot of time and effort. A more feasible option would be to cut a few small (foot by foot) plots randomly across the pasture. You'd have to assume that what you sampled in your smaller plots is representative of the entire pasture, but the smaller plots allow you to more efficiently enumerate the species and density of each plot. The data you collected from those plots would then be extrapolated to the entire pasture to tell you species and quantity. Much is the same for fisheries work, but instead of just species and quantity as in the pasture example, we are also interested in their size (length), proportion of small fish in the population (recruitment), condition or health (weight), their diet, and where they are living. To obtain this information, we have many 'tools' to help us effectively sample fish populations.

All methods of sampling fit into two categories: passive and active. Passive gears capture fishes by entanglement, entrapment, and angling (trot lines) that are not actively moved by persons or machines for their capture. These



Gill nets are an example of passive gear we use to sample lakes and reservoirs.



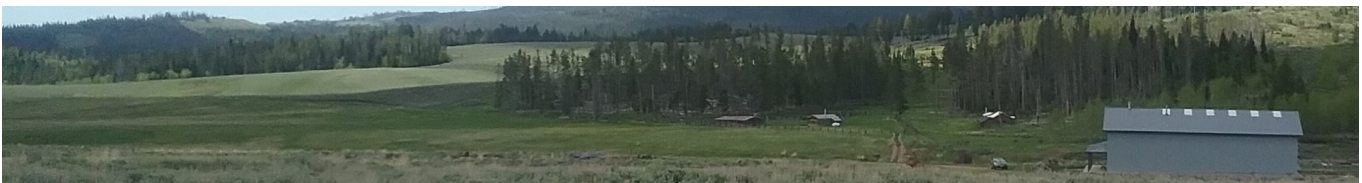
Barge electrofishing is an example of active sampling we do to sample fish population in wadable rivers.

Fisheries Management 101 cont'd

types of gear come with many advantages: require no large equipment other than a boat, are usually very simplistic in design, and require little training to operate. Standardization of passive gears also makes comparisons to previous sampling events (like year to year comparisons) easier when nets, time, and location are the same. One disadvantage to using this type of gear is that bias can occur for

species, size, and sex. As the name suggests, active gear is moved through the water in pursuit of fish either by human or mechanical power. Examples of active sampling would be electrofishing, hydroacoustic sampling (think fancy fish finder), Trawl nets, cast netting, and seining. One advantage of active gear is the operator can sample for a known amount of space and time. This

allows for more precise estimates of fish abundance. A disadvantage to this type of method is their tendency to need additional personnel and increased effort. They often times require more training than passive gears, too. Whichever tool we use, the information gathered is pivotal for fisheries management and decision making.



Identifying and enumerating this entire pastureland would be a daunting if not impossible task to undertake.

New Zealand Mudsnailes: an AIS already in Wyoming

By Jessica Warner

With the spotlight frequently on the highly invasive zebra and quagga mussels and their potential impacts to Wyoming, it is easy to overlook the other aquatic invasive species threatening Wyoming's resources. One such AIS, already found in some Wyoming waters, is the New Zealand Mudsnaile. Tiny in size, mudsnailes, only reach 1/8 inch which makes detecting them difficult, particularly on angling gear. The mudsnaile's operculum (a plate they use to cover their shell opening) allows them to survive extended dry periods as well as direct contact with chemicals frequently used for AIS management. Additionally, mudsnailes reproduce by cloning, and only one specimen is required to begin a new population. All of these traits make New Zealand Mudsnaile almost impossible to eradicate once established.

Mudsnailes are able to reproduce rapidly and outcompete native species for resources. Additionally, they are filter feeders, create large populations in small areas, and alter the water chemistry



Mudsnailes collected in Wyoming.

where they are located which can pose problems for native species of snails, other filter feeders, and fish.

While New Zealand Mudsnaile are currently found in some Wyoming waters, including portions of the Snake, Bighorn, Shoshone, and North Platte Rivers,

it is important that we continue to diligently monitor and prevent their further spread. One of the easiest and most effective ways to ensure you are not inadvertently transporting mudsnailes is to thoroughly clean all boating, angling, and wading gear before moving to another area, even if you are staying in the same river. Ensure your gear is free of mud and vegetation; two areas mudsnailes love to hide. In addition, while you are out enjoying Wyoming's aquatic resources, if you happen to see small, whorled, snails in an area not already known to have New Zealand Mudsnaile be sure to contact your local Game and Fish regional office to report what you have found. You can find more information about New Zealand Mudsnailes and other Aquatic Invasive Species on the Game and Fish website: wgfd.wyo.gov/Fishing-and-Boating/Aquatic-Invasive-Species-Prevention/Threats

Caring for your Catch



Kokanee packed in cubed ice.

By Robb Keith

I was waiting in line at a local hardware store a few years back. The lady in front of me told her friend, “I love eating the trout caught from Flaming Gorge Reservoir in the winter; they are firm and delicious. I won’t eat those caught during the summer; they are soft and mushy”. Obviously she has been given fish during the summer that have not been cared for properly. At temperatures over 40 °F, fish start to spoil as soon as they die, the higher the temperatures the more quickly they spoil – becoming soft and mushy. Unfortunately this

phenomenon can be seen regularly on Flaming Gorge Reservoir during warm months, as well as most other waters across the country. Anglers expose their catch to warm temperatures on stringers, in buckets and even live wells. Here are simple steps to ensure your catch stays firm and tasty:

1. Take a large enough cooler with you to hold your anticipated catch and plenty of ice. I like to take at least 20 pounds of cubed ice when Kokanee fishing on Flaming Gorge or Fontenelle reservoirs, as block ice won't keep your fish cold enough.
2. As fish are caught, immediately dispatch them with a sharp blow to the head and gut them.
3. Put your catch on a few inches of ice spread across the bottom of your cooler and cover them with more ice. Keep adding ice as you add fish so they are surrounded by ice at all times.
4. If you did not gut the fish during step #2, do so when

there is lull in the action and then put them back under the ice.

5. Keep fish ice-cold until just before they are either cooked or they will be packaged for the freezer.
6. If freezing your catch, wrap them well in plastic wrap and then vacuum seal them. Vacuum sealed fish stay amazing fresh in the freezer. No vacuum sealer - tightly wrap them in plastic wrap and then tightly wrap them in freezer paper.
7. If you are camping or on the road, keep the fish packed in ice at all times. Make sure that each fish is well-covered with ice including filling the gut cavities. Add fresh ice and drain off the melt water from time to time.

Properly cared for fish are a real treat when it's time to eat them. Do yourself and those sharing your catch a favor and give this a try.

Bear River Basin Fishery Update

By John Walrath

As their name suggests, Bear River Cutthroat Trout are native to the Bear River basin and are a sport fish in Wyoming. To provide a local fishing opportunity for the residents of Evanston without a large impact to the wild population, a Bear River Cutthroat Trout stocking program was initiated. Roughly, 2,200 Cutthroat Trout have been stocked annually, in the Bear River through Evanston, for many years to achieve this goal. Despite stocking fish, catch rates

by anglers and during sampling events remained low.

Bear River Cutthroat Trout have been a focus of research in the basin to better our understanding of their abundance, life

history, survival, distribution, and angler harvest. One such study has been ongoing for the last few years. This study seeks to determine if the hatchery fish stocked in the river are surviving and contributing to the fishery. As

Table 1. Total catch of marked cutthroat from 2018-2020. AD clipped fish were stocked in 2018, LPV clipped in 2019, and RPV clipped in 2020. First-year mortality was derived by dividing the second-year catch by the first-year catch for each mark. A first-year mortality rate was generated for cutthroat stocked in 2018 and 2019. A first-year mortality rate for RPV clipped BRC can be generated if sampling occurs in 2021.

Year	AD	LPV	RPV	Mortality - 1 st yr
2018	11	-	-	82%
2019	2	9	-	56%
2020	3	4	15	-

Bear River Fisheries Update Cont'd

such, all fish stocked into the system for the past three years were marked by clipping a unique fin specific to the year they were stocked. We then sampled a large expanse of the river to allow us to estimate their contribution to the fishery, their distribution from the stocking location, and their survival over multiple years.

Sampling in the Bear River can be challenging with its highly variable flows and limited public access. Thanks to many landowners, access was granted for sampling to occur at five locations each of the last three years. This sampling was conducted with electrofishing equipment that is installed on a cataraft and pulled upstream. The gear allows us to temporarily immobilize fish and then net them. They are placed in a tank of fresh water on the cataraft to recover prior to processing. Once we finish collecting fish from a site we record length, weight, and make note of any clipped fins before releasing them back into the river. Over the last three years, Bear River Cutthroat Trout have been sampled near the Utah border (south) all the way down to near the Town of Bear River (north). Thus far, hatchery Bear River Cutthroat Trout have only been sampled in an area encompassing roughly four miles above and below Evanston.

Catch rates of fish have varied year to year. Our lowest catch rate occurred in 2019, when there was a ~75% decrease across many species, most notably in Cutthroat Trout and Mountain Whitefish. Thankfully, the catch rate this past year was four-fold greater than what was sampled in 2019 (Figure 1). The

large fluctuation in Bear River Cutthroat abundance across multiple size-classes indicates a large emigration (left the mainstem) must have occurred in 2019 when conditions were poor and an immigration (reentered the mainstem) in 2020 when conditions became more favorable. It is currently unknown where the majority of these fish sought refuge in the system.

Whether due to fishing or natural mortality, the data suggests a large proportion of the stocked fish population experience a high mortality after stocking. First-year post-stocking mortality rates for Cutthroat Trout stocked in 2018 was 82% and 56% for those stocked in 2019 (Table 1). Given the historical low fishing pressure on the river, it is most probable that natural mortality is responsible for the decline. It is also possible that a small portion of the stocked fish are emigrating (moving outside our sampling areas), but given the extent of our sampling, this is

not very likely as we should have sampled them at other sites farther away from Evanston. Another possibility is that poor habitat conditions created an environment unsuitable for their survival. The USGS river gage-station through the town of Evanston shows that the Bear River experienced a prolonged period of low flow in summer and fall 2019. These low flows coupled with warmer water temperatures could have caused higher natural mortality. Additionally, natural recruitment has historically been low because of numerous water diversion structures segmenting habitat or acting as barriers, preventing Bear River Cutthroat Trout from migrating to suitable spawning habitat.

Work already accomplished in the basin and projects currently underway will help resolve issues with connectivity during spawning that will help ensure the Cutthroat Trout population persists for generations to come.

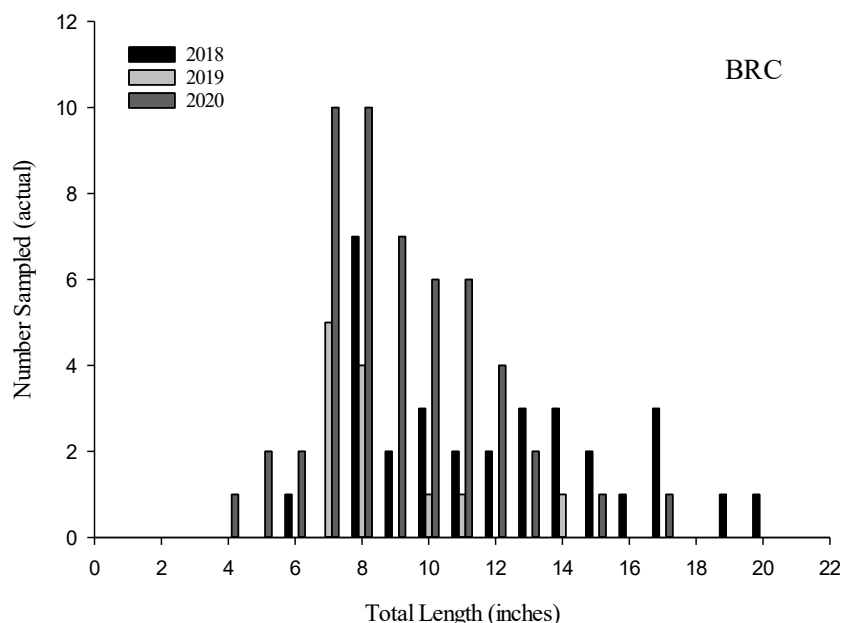


Figure 1. Length frequency of Bear River Cutthroat.

Attention Kokanee Anglers

Keep the small Lake Trout you catch

By Robb Keith, John Walrath, Ryan Mosley

Flaming Gorge Reservoir (FGR) is a diverse fishery featuring Rainbow Trout, Bear River Cutthroat Trout, Kokanee Salmon, and Lake Trout. The Wyoming Game and Fish Department (WGFD), Utah Division of Wildlife Resources (UDWR) and US Fish and Wildlife Service annually stock 290,000 Bear River Cutthroat Trout, 850,000 Rainbow Trout and 1.7 million Kokanee to enhance

angling opportunity in the reservoir. Fisheries biologists from WGFD and UDWR are concerned that predation by small Lake Trout (<24 inches) could suppress game fish populations, especially Kokanee in FGR. Decades of annual fishery data and anecdotal information

(like the pictures in Photo 1) show increasing numbers of small Lake Trout and that they consume Kokanee. If left unchecked, the impacts to the Kokanee fishery could be catastrophic. There are well documented examples of Lake Trout populations collapsing Kokanee fisheries across the western US that add fuel to these concerns (Google: Western Lake Trout Woes). However, there is a solution: Kokanee anglers can help

reduce the number of small Lake Trout by keeping the small Lake Trout they catch while fishing for Kokanee.

“Western Lake Trout Woes” is a peer reviewed scientific article that chronicles the challenges agencies in seven western states have had addressing the impacts of Lake Trout predation on fisheries in fifteen lakes and three reservoirs. In the western US, Lake Trout were introduced widely in the early 20th century because of

Kokanee fisheries.

Flaming Gorge Reservoir is primarily managed for Kokanee Salmon, Rainbow Trout, Bear River Cutthroat Trout and trophy Lake Trout. The abundance of Lake Trout less than 28 inches has been increasing since the mid-1980s while the abundance of trophy Lake Trout (>28 inches) has been declining since the early 1990s (Figure 1). Prior research has shown that Lake Trout less than 24 inches will eat some fish, but

over 24-inches, they primarily consume other fish. According to gillnetting completed reservoir-wide in 2020, the majority of Lake Trout (51%) captured were less than 24-inches. Fisheries managers are concerned with the



Photo 1. Angler caught Lake Trout ranging 11—20 inches in size. All except one was found to have juvenile Kokanee in their stomachs. The upper right fish consumed a Rainbow Trout.

their ability to attain large sizes, >40 lbs, under favorable conditions. More recently, Lake Trout have become increasingly problematic because they have been shown to prey upon and potentially compete with native and sport fishes, including Kokanee. The article summarizes many instances where predation by growing populations of Lake Trout have either collapsed or nearly collapsed prominent and important

impacts that the expanding population of Lake Trout <24 inches (predation) is having on the population of juvenile Kokanee and trout in FGR.

Although small Lake Trout (<24-inches) predominantly eat zooplankton, crawfish and aquatic insects, they opportunistically and seasonally prey upon juvenile trout and Kokanee. Even by seasonally and opportunistically preying upon

Keep the small Lake Trout you catch cont'd

Kokanee, small Lake Trout consume a significant portion of the juvenile Kokanee in FGR. Even if a single Lake Trout less than 24 inches consumes only ten Kokanee in a year, a population of 100,000 Lake Trout of that size could consume one million Kokanee. So, individual predation rates do not have to be high if there is a large population size; a catastrophic effect can still be made. Additionally, fisheries biologists with the Colorado Parks and Wildlife determined that small lake trout comprised the biggest population of predators on Kokanee at Blue Mesa Reservoir, CO. Bottom-line, the more juvenile Kokanee that small Lake Trout consume means fewer 3- and 4-year old Kokanee for anglers to pursue in the future. To maintain a healthy fishery, the number of small Lake Trout needs to be reduced, thereby minimizing their impact on the other sport fisheries - especially Kokanee.

As mentioned at the beginning of this article, the solution is rather simple, reduce the numbers of small Lake trout in FGR using angler harvest. Angler harvest can be a highly effective tool for reducing the population of small Lake Trout and some anglers are already responding to our concerns. For example, the dominant fish caught and retained by ice anglers are small Lake Trout. During the winters of 2019 and 2020, ice anglers harvested 70% and 61% of the small Lake Trout they caught, respectively. By contrast, creel surveys completed in the summer of 2020, demonstrate that Kokanee anglers are actually releasing a large percentage (69%) of the small Lake Trout they catch while

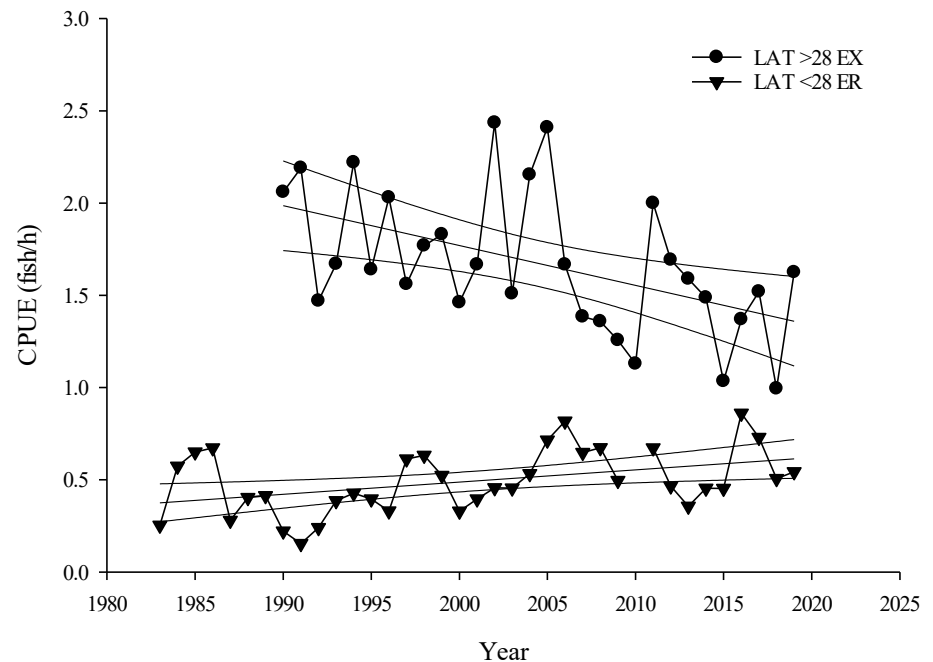


Figure 1. Mean Catch per Unit Effort (CPUE (fish/h)) of lake trout (LAT) ≥ 28 inches (●) from exploratory nets (EX) since 1990 and lake trout (LAT) < 28 inches (▼) from experimental nets (ER) since 1983 across all regions of Flaming Gorge Reservoir. Curves around EX and ER means represent 95% confidence intervals.

fishing for Kokanee. The question is why? We've presented the data on how small Lake Trout can impact a fishery. Small Lake Trout are also great table fare, they can be cooked in a variety of ways, and they're especially tasty when smoked. They're also extremely healthy because they are high in Omega-3 fatty acids. The American Heart Association recommends eating two servings of fish per week, particularly a fatty fish, like Lake Trout. As a Kokanee angler, ponder what's been discussed along with the pictures above. Consider when juvenile Kokanee end up in the stomach of a small Lake Trout they will not be acrobatically jumping on the end of your line someday. Kokanee anglers can help the fishery and essentially write their own success story by harvesting more small Lake Trout. The

current regulation allows you to harvest three Kokanee, but you can also harvest an additional 12 Lake Trout less than 28 inches and have 24 in possession. When traveling a great distance to fish the Gorge why not go home with more fish in the cooler? Harvesting small Lake Trout today will help achieve the balance of an abundant Kokanee fishery and a healthy trophy Lake Trout fishery tomorrow.

For more information about Lake Trout management in Flaming Gorge check out articles in prior Green River Regional Angler Newsletters. You can also find good information at the following two websites:

<https://wgfd.wyo.gov/Regional-Offices/Green-River-Region> and [https://wgfd.wyo.gov/Regional-Offices/Green-River-Region/Flaming-Gorge-Management-\(1\)](https://wgfd.wyo.gov/Regional-Offices/Green-River-Region/Flaming-Gorge-Management-(1))

Fishing Contests: A novel tool for managing invasive fish populations in the region

By John Walrath

Most fishing contests are fun events for anglers that entail awarding prizes for catching the longest, heaviest, or greatest amount of fish during the

about the reason their numbers need to be reduced, and spread the word regionally and sometimes nationally. Often times the target species fitting this bill have liberal limits to increase harvest, making traveling to the water body more appealing and providing opportunity for anglers to go home with an ample supply of quality table fare.

The two focal species in Green River Region are Burbot (regionally) and Lake Trout less than 25 inches (Flaming Gorge Reservoir); the

encouraging anglers to take advantage of the liberal limits.

The Green River fisheries management crew (FMGR) biologists also follow these regulations, but there are instances in which Burbot are more valuable when released alive. As an example, fisheries biologists have tagged and released Burbot in association with a couple of regional fishing contests. Tagging the fish serves two purposes: as prize categories for the fishing contests and to answer research questions. Fishing contest sponsors give away prizes for tagged Burbot entered by participants. This type of prize levels the playing field so even novice Burbot anglers have a chance at winning prizes. The tags are internal which encourages participants to enter every Burbot caught to find out if they are



Cash prize awarded to contestant for catching largest burbot during the 2016 Burbot Bash contest.

tournament period. Many contests serve the purpose of raising money for campaigns, some just want people to go out and have fun, and all bring money into the local economy. While the Wyoming Game and Fish Department is responsible for permitting, we are typically not involved in planning or implementing the contests.

However, there are instances when the objectives of a fishing contest and the Department are aligned. In the Green River Region, this happens when contests are focused on species that behave invasively or are so abundant that they are harming other species in the fishery. In these instances, the contests serve as a tool for the Department to encourage the removal of a large number of the target species, educate the public

numbers of both species need to be reduced. Fisheries Biologists are concerned about the high abundance of both species and the impacts they are having on the other fish in the water they share. In both cases, the Department has taken steps to liberalize regulations to increase angler harvest. In the case of Burbot, which behave like an invasive species west of the Continental Divide, the Department has reclassified them as a non-game species (allowing unlimited harvest) and require anglers to kill them immediately when captured. This means that when an angler catches a Burbot, they can either keep it for consumption or legally dispose of it. In the case of Lake trout the limit is very liberal for fish less than 28 inches and conservative for fish 28 inches and greater. We are frequently



Each Burbot entered is scanned for tags as part of fishing contest.



Contests encourage liberal harvest of over abundant sportfish like Lake Trout under 25 inches in Flaming Gore Reservoir.

tagged. As tagged Burbot are caught and returned, the fisheries biologist can learn about their movement and growth rates since their release.

In the case of Lake Trout under 25 inches, the Department biologists and contest sponsors use a couple different strategies to encourage anglers to pursue and harvest small Lake Trout. Anglers registered for the Buckboard Pupulation Control Contest are

trying to catch one or more of the one hundred Lake Trout under 25 inches tagged by a fisheries biologist. If they succeed, they have a chance at winning sizable cash prizes. The tags in this case are external so anglers can see them. Another event, the Mac Attack Contest, awards prizes to the teams that check in the most pounds of Lake Trout during the two day

contest. There is also prize money awarded to participants that catch one of the previously mentioned tagged Lake Trout.

The FMGR currently partners with the sponsors of three fishing contests on Flaming Gorge Reservoir (Burbot Bash, Mac Attack and Buckboard Pupulation Control Contest) and one sponsor on Fontenelle Reservoir (La Barge Ding the Ling). Ultimately, it is our hope that by partnering with contest

sponsors when fish management and contest objectives align, we can remove more fish, spread our message over a wider range of anglers, and that contest participants enjoy their experience enough to come back and target the species again outside of the contest. Additionally, while the Department releases a few tagged Burbot alive, we are confident those fish draw the attention of anglers to the fisheries resulting in an increase of harvest. Whether it is Burbot or Lake Trout less than 25 inches, the overall goal is to remove enough target fish to bring the whole fishery back into a healthy balance.

Many thanks to the contest sponsors (Flaming Gorge Chamber of Commerce, Buckboard Marina and the La Barge Events Committee) for all their hard work and commitment to these successful contests and to the thousands of anglers that have participated in these contests over the years. We look forward to seeing you again at future events.

2020 AIS Season Update

By Jessica Warner & Eric Hansen

While 2020 certainly brought many challenges, the Green River region AIS crews were able to meet those challenges, head on, to surpass previous season's inspection numbers, and increase the efficiency of watercraft check stations. During the 2020 boating season, more people than ever chose to recreate in Wyoming's beautiful lakes and reservoirs. This activity was reflected in the total watercraft inspections in the Green River region increasing from 19,371 in 2019 to 27,322 in 2020;

the watercraft check station at the Evanston POE saw an increase of nearly 50%. AIS inspectors, specialists and other Game and Fish personnel all pitched in to ensure the influx of boaters could be inspected as efficiently as possible. The Evanston inspection crew also saw an increase in the number of inspectors and the addition of a water-holding tower at the check station to help decrease boater wait times due to filling of decon units for watercraft decontaminations.

2020 also saw the AIS program's first trial use of mussel

detection dogs at the Evanston check station. Barnacle (Barney) and



Mussel discovered on watercraft during boat inspection

2020 AIS Season Update cont'd

his handler Debra DeShon from Mussel Dogs spent a weekend at the busy check station working alongside Wyoming's human inspectors to help detect higher risk watercraft entering the state. Aside from being able to detect watercraft exposed to mussels, Barny also encouraged lots of great conversations and questions from the boating public, within the Department, and the community at large.

During a time when traditional outreach programs were impossible, AIS personnel sought alternative means of spreading the educational messages related to AIS. AIS personnel from the Green River region were able to participate in a virtual career day to discuss what an AIS Specialist is and the importance of AIS prevention and management. AIS personnel also participated in multiple outreach activities for the Department including a Facebook Live event to discuss the harms of AIS, prevention methods, and

watercraft inspection protocol.

Though the watercraft check stations are often the visual part of Wyoming's AIS program, monitoring for aquatic invasive species introduction and spread in the state's water resources is also a vital responsibility for AIS personnel. Despite a record year for inspections, AIS Specialists and technicians were able to conduct monitoring activities at nine reservoirs and four flowing waters. Turn to page 6 of this year's newsletter to read more about how and why monitoring is conducted.

As the 2021 boating season begins, AIS personnel are actively preparing for another busy season. The Green River AIS personnel are grateful to our boating community for their patience as we continue to face and overcome the challenges these unique times are

presenting us. We look forward to seeing you this summer and wish everyone a happy and safe boating season. For more information or to locate a inspection location visit: <https://wgfd.wyo.gov/Fishing-and-Boating/Aquatic-Invasive-Species-Prevention/AIS-Inspection-Locations>



Motor flush was performed when water was found during AIS inspection.

Tracking native fish movements in the Blacks Fork

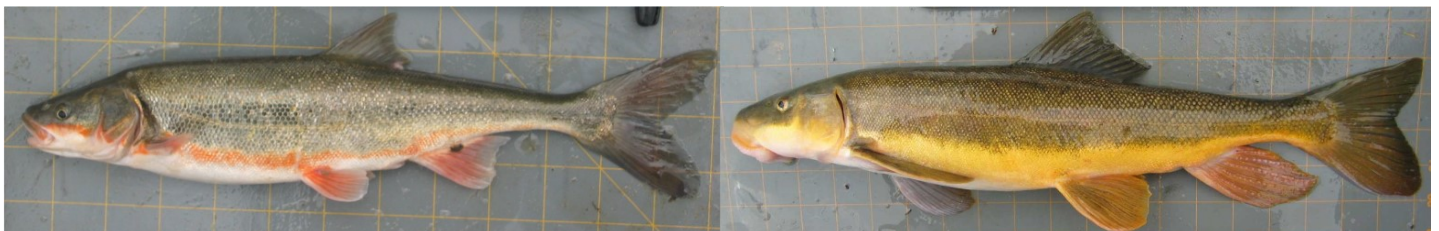
By Alissa Tiemann

The Roundtail Chub and Flannemouth Sucker are lesser known fish found in a few isolated tributaries of the Green River. Historically, these species were two

of the most abundant fish found in the Upper Colorado River due to impressive adaptations that have enabled them to survive in extreme environmental conditions. Today, they occur in approximately 45% of their historic range as a result of habitat alteration and invasive

species such as the white sucker. Although not known as a target for sportfishing in Wyoming, they are an important part of the aquatic ecosystem.

In 2002, the Wyoming Game and Fish Department started a

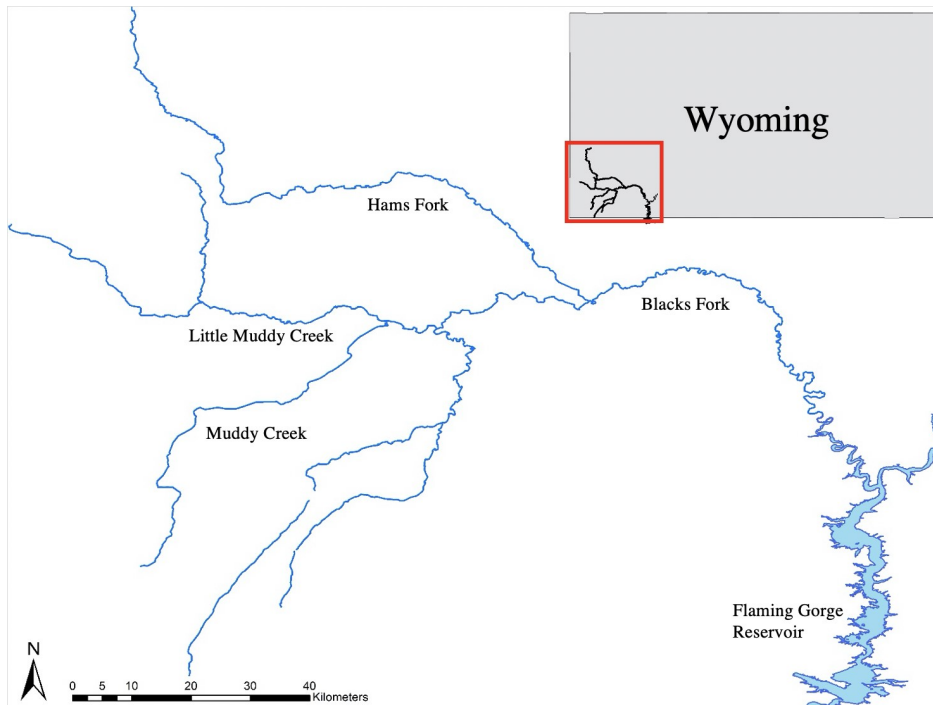


Roundtail Chub (left) and Flannemouth Sucker (right) are native to Southwest Wyoming.

Tracking native fish movements in the Blacks Fork

project to document the distribution and relative abundance of Bluehead Suckers, Flannemouth Suckers, and Roundtail Chub throughout the Green River and Little Snake drainages in Wyoming. This initial work documented populations of Flannemouth Suckers and Roundtail Chub in the Blacks Fork drainage. In 2018, the Wyoming Game and Fish

Department revisited the Blacks Fork drainage to update information on the populations of Roundtail Chub and Flannemouth Sucker throughout the Blacks Fork, Hams Fork and Muddy Creek drainages. To gain a better understanding of how the fish use the Blacks Fork River and its tributaries, biologists sampled the river and its tributaries and implanted fish with passive integrated transponder (PIT) tags. These tags uniquely identify each fish and allow biologists to track their movements using nine PIT tag antennas installed around each



Map of the major tributaries of the Black Fork Drainage. PIT antennas were installed at the confluences to monitor fish movements.

approximately 1,357 fish have been tagged and 313 fish have been redetected moving throughout the Blacks Fork drainage. This project will not be completed until 2022; however, early results have provided new insights to how these fish are using tributary habitat. Roundtail Chub likely use the Muddy Creek drainage as overwintering

priority tributary. Antennas were installed flush against the substrate to allow tagged fish to pass over the array and provide movement data.

As of 2020, the Wyoming Game and Fish Department began sponsoring a graduate student from the University of Wyoming to track and analyze the movement behavior of these fish. To date,

and spawning habitat while, Flannemouth Sucker likely use the Muddy Creek drainage only for spawning. Tagging location, fish size and season seem to be linked with where these fish are moving throughout the drainage and temperature and flow may be two driving factors affecting the timing of these movements. This project will help identify important habitat

requirements and inform future management and conservation efforts for native fish populations.



PIT tags are small tags inserted into the body cavity of the fish.

Blast from the Past

Many great articles are archived in past angler newsletters available to the public on our website at <https://wgfd.wyo.gov/Fishing-and-Boating/Fishing-News>. Below is a list of past articles that relate to current topics discussed in this year's newsletter.

Interested in learning more about native species research in the Green River Region? Check out the articles located in Volume 15, pages 10 and 13; Volume 14, page 10; and page 10 of the 2007 edition.

Check out the recommendations for consuming fish in the article in Volume 8, page 4.

Take a crash course in the Flaming Gorge Reservoir Lake Trout fishery by reading the articles in Volume 15, pages 4-5; Volume 13, page 3; and Volume 12, page 3.

For tips on catching Lake Trout and Burbot, check out the articles in Volume 14, pages 6-7 and Volume 7, page 3.

Learn more about how management of Burbot has evolved in the Green River Region by perusing articles in Volume 9, page 3, Volume 8, page 5.

Dates to Remember

Wyoming Outdoor EXPO May 6-8 — The Wyoming Game and Fish Department invites kids and the public to virtually participate in three ways: **Expo@School**, **Expo@Home**, and **ExpoLive**. All will be accessed through the website - wyomingexpo.com. Come learn more about wildlife in their state, outdoor skills they can use, and of course fun!

Free Fishing Day June 5 — The Wyoming Game and Fish Commission has declared June 5 Free Fishing Day to coincide with the beginning of the National Fishing and Boating week. Residents and nonresidents may fish Wyoming waters (excluding Wind River Indian Reservation and Yellowstone National Park, which are not regulated by the State of Wyoming) without a fishing license or conservation stamp.

Kemmerer Kids Fishing Derby June 12 — Located at the Kemmerer Community Pond by the overpass. Fishing from 8 am to 12 pm. Sponsored by the City of Kemmerer.

Evanston Kids Fishing Day June 12 — Located at the UP Ice Ponds, Fishing from 8 am to 12 pm. Sponsored by Upper Bear River TU Chapter.

Rock Springs Kids Fishing Day June 19 — Located at the Rock Springs Pond - south side of the road leading into the Rock Springs Golf Course. Event 9 am to 1 pm. Sponsored by Seedskaadee TU Chapter.



Kid's Fishing Day— Photo by Lucy Wold.

WGFD Mission

“Conserving Wildlife - Serving People”

Fish Division Mission

“As stewards of Wyoming’s aquatic resources, we are committed to conservation and enhancement of all aquatic wildlife and their habitats for future generations through scientific resource management and informed public participation. We will use an integrated program of protection, regulation, propagation, restoration and control to provide diverse, quality fisheries resources and angling opportunities. Our efforts will balance the productive capability of habitats with public desires.”